REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-5, 7-15, 17-18, 21-22, and 26-29 are currently active in the case. Claims 6, 16, 19-20, 23 and 25 were cancelled by a previous amendment. In the present Amendment, Claims 1-5, 7-15, 17-18, and 21-22 are amended without introducing any new matter, and dependent Claim 24 is cancelled without prejudice or disclaimer.

In the January 26, 2009 final Office Action, Claims 1-4, 7-14, 17-18, 21-22 and 24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Shimizu et al. (U.S. Patent No. 6,971,012, hereinafter "Shimizu"). Claims 5, 15, and 26-29 were indicated as allowable if rewritten in independent form.

In response to a Request for Reconsideration filed under 37 C.F.R. § 1.116 on April 27, 2009 without amending any of the claims, and a personal interview held between Applicants' representative Nikolaus P. Schibli, Ph.D., Reg. No. 56,994, Jonathan DeVile, Ph.D., and Examiner Hoang, Art Unit 2436, on May 6, 2009, where the outstanding rejections were discussed, an Advisory Action issued on June 19, 2009, upholding the rejection of the final Office Action.

Applicants acknowledge with appreciation the indication of allowable subject matter in the January 26, 2009 Office Action. However, because Applicants believe that amended independent Claims 1, 11, 17, and 21, from which Claims 5, 15 and 26-29 depend, respectively, include allowable subject matter, Claims 5, 15 and 26-29 are maintained in dependent form a present time.

In response, Applicants herewith amend independent Claim 1 to clarify certain features related to the code words. In particular, Claim 1 is amended to recite that "the material item composed of a plurality of units and the code word composed of a plurality of

parts, each part including different data from the code word." These features find non-limiting support in Applicants' disclosure as originally filed, for example in the specification at page 7, lines 7-2, and at page 10, lines 3-18, and in Figures 6-7. Moreover, independent Claim 1 is also amended to recite that the correlator is "operable to generate for the marked material item a dependent correlation value by correlating ***the partial code word with a corresponding partial stored code word that is a part of a whole stored code word***." (emphasis added). This feature finds non-limiting support in the specification at page 12, lines 1-4, and page 13, lines 15-21. In addition, independent Claim 1 is amended to recite that when the dependent correlation value does not exceed the predetermined threshold, the correlator is operable to iteratively increase a number of parts of the code word used, to increase information quantity of the recovered partial code word. These features find non-limiting support in Applicants' specification at page 13, lines 5-14. Dependent Claims 2-5, and 7-10 are amended to correspond to the changes of Applicants' independent Claim 1. No new matter has been added.

Moreover, dependent Claim 22 is amended to recite a "computer-readable medium," to be directed to statutory subject matter, by combining the features of dependent Claim 24 into Claim 22. Consequently, dependent Claim 24 is cancelled without prejudice or disclaimer.

In response to the rejection of Claim 1 under 35 U.S.C. § 102(e), Applicants respectfully request reconsideration of this rejection and traverses the rejection, as discussed next.

Briefly summarizing, Applicants' independent Claim 1 is directed to a data processing apparatus operable to identify a code word present in a marked version of a material item, the material item composed of a plurality of units and ***the code word composed of a plurality of parts, each part including different data from the code word***, the marked version formed by

combining each of the plurality of parts of the code word with one of the plurality of units. The apparatus includes a recovery processor operable ***to recover a partial code word composed by at least one of the plurality of parts of the code word*** from at least one of the plurality of corresponding units of the marked material item, and a correlator operable to generate for the marked material item a dependent correlation value by correlating the partial code word with a corresponding partial stored code word ***that is a part of a whole stored code word***, and a detector operable to determine ***whether the whole stored code word is present*** in the marked material item ***based on the dependent correlation value for the partial code word exceeding a predetermined threshold***.

In addition, with the features of Applicants' Claim 1, when the dependent correlation value does not exceed the predetermined threshold, the correlator is operable to iteratively increase a number of parts of the code word used, ***to increase information quantity of the recovered partial code word***, each time the information quantity of the partial code word is increased, the correlator is operable to generate a dependent correlation value by correlating the partial code word having increased information quantity with a corresponding partial stored code word, the iterative increasing of the information quantity of the partial code word continuing until the whole code word is recovered by the recovery processor, and correlated with the whole stored code word by the correlator, or the predetermined threshold exceeded.

As discussed in Applicants' specification at page 15, lines 18-27, and also shown in Figure 8, the features of Applicants' Claim 1 require an iterative process to find a whole code word based on the recovery of only a part of the whole code word. In case the threshold correlation value of a part of the whole code word is not met, another code word part can be added to the previously recovered one, thereby using a partial code word having more information than the one previously used. This subsequent recovered code word is then again correlated with the correlator, and if the correlation value of the partial code word having an

increased size in not met again, another code word part is added to the recovered code word. This iteration is continued until either the whole code word is recovered, or the dependent correlation value is met. This allows to reduce the processing, in particularly in a case where the whole code word can be easily identified, without having to extract the whole code word from the marked material item.

For example, in hierarchical level HL1, the dependent correlation values are calculated from an individual image or frame 0, 1, 2, etc. At hierarchical level HL2, two successive images are taken into account (i.e. 0 and 1), and at hierarchical level HL3, four successive image are taken into account (i.e. 0, 1, 2, and 3.) Please note that the above discussion is citing examples of embodiments that are provided for explanatory purposes only and should not be construed or used to limit the scope of the claims in any fashion.

Turning now to the applied reference, Shimizu is directed to a method of embedding an electronic watermark, where a detection reliability of the embedded watermark does not depend on the strength of the signals that are measured in frames. (Shimizu, Fig. 1, Abstract.) Shimizu explains that a bit stream is prepared to be embedded into a frame. (Shimizu, col. 2, ll. 26-29.) Every motion frame has *the same bit stream embedded therein*, but for a change in the sign of the bit stream. (Shimizu, col. 2, ll. 26-37.) To detect this bit stream information that is present in each frame, values obtained through observation of frames are accumulated, and the accumulated values are compared with threshold values. (Shimizu, col. 2, ll. 38-43.) This is necessary because the bit information may have been damaged by a compression algorithm before being sent. (Shimizu, from col. 3, l. 67, to col. 4, l. 6). Moreover, the method also embeds the bit stream information of successive image with an alternating sign values, so that the bit stream information can be easier read when successive frames are very similar. (Shimizu, col. 4, ll. 48-67.)

Shimuzu's method then uses a inversion cycle that is longer than a frame period to change the sign of the bit stream information. First, the sign of the bit stream information in a frame is detected. (Shimizu, from col. 5, l. 60, to col. 6, l. 15, Step 440.) After this, consecutive bit stream information in frames is checked, until the end of the inversion cycle is reached, to change the sign of the bit stream information. (Shimizu, col. 6, ll. 3-13.)

However, Shimizu fails to teach all the features of Applicants' amended independent Claim 1. In particular, the cited passages of Shimizu fails to teach:

> a correlator operable to generate for the marked material item a dependent correlation value by correlating ***the partial code word with a corresponding partial stored code word that is a part of a whole stored code word***, and
> a detector operable to determine whether the ***whole stored code*** word is present in the marked material item based on the dependent correlation value for the ***partial code word*** exceeding a predetermined threshold.

(Claim 1, portions omitted, emphasis added.) As discussed above, in Shimizu, there is no correlation between a partial code word, that includes a part of the whole code word, with a corresponding part of a stored code word, as required by Applicants' independent Claim 1.

In Shimizu, the bit stream information is exactly the same from frame to frame, with exception of a difference in the sign value. (See also Shimizu, Fig. 6, showing changing sign values.) Applicants respectfully disagree with the Advisory Action's statement that "[t]he sign inversion cycle does not mean that the bit stream information is exactly the same from frame to frame." (Advisory Action, p. 2, ll. 10-13.) Shimizu clearly explains that the same bit stream is embedded into the selected frames. (Shimizu, col. 2, ll. 30-37, Fig. 1, see also "[a]t step 340, the bit stream is embedded in one frame," col. 5, ll. 12-15, Fig. 3.)

Moreover, Shimizu also fails to teach the that each time the information quantity of the partial code word is increased, the correlator is operable to generate a dependent correlation value by correlating the partial code word having increased information quantity with a corresponding partial stored code word, as further required by Applicants' Claim 1.

Because Shimizu first accumulates the measured values in his step 450, (Shimizu, col. 2, ll. 44-50, col. 6, ll. 1-3) there is not correlation that is performed "by correlating the partial code word having increased information quantity with a corresponding partial stored code word."

Therefore, the cited passages of Shimizu fail to teach every feature recited in Applicants' Claim 1, so that Claims 1-5 and 7-10 are believed to be patentably distinct over Shimizu. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection based on Shimizu.

Independent Claims 11, 17 and 21 recite features analogous to the features recited in independent Claim 1, but directed to different statutory classes and having different scope, with Claim 11 directed to a method, Claim 17 directed to an encoding data processing apparatus, and Claim 21 directed to a system for identifying versions of a material item. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the rejections of Claims 11, 17 and 21, and all associated dependent claims, are also believed to be overcome in view of the arguments regarding independent Claim 1.

Consequently, in view of the present Request for Reconsideration, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-5, 7-15, 17-18, 21-22, 24 and 26-29 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Nikolaus P. Schibli, Ph.D.
Registered Patent Agent
Registration No. 56,994

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)

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